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THE MICROSCOPE IN DIAGNOSIS.

GEORGE E. FELL, M.D., F.R.M.S., Buffalo, N. Y.

While the microscope has revealed the intimate structure of tissues, histology, and illustrated the morphological changes producing pathological conditions, yet the range of the instrument in diagnosis is somewhat limited. To be true, we may note the pathology of the kidneys and genito-urinary tract in deposits of tube casts, pus-corpuscles, salts, blood-corpuscles and epithelium. In examining fœcal discharges, important information may be obtained, as also in matter ejected from the stomach and lungs.

After mentioning the diagnosis of tumors, we find we have covered mainly the field of microscopical investigation so far as diagnosis is concerned. Considering the value of the instrument in almost all branches of scientific investigation, this statement of its range in diagnosis may appear unduly limited. No one can question its value, and to one frequently called to use the microscope I can urge its more general use, with the assurance that the intelligent observer will usually be well repaid for time spent in this direction.

Since the discovery of the bacillus tuberculosis by Koch, many have looked upon the microscope as a most important factor in diagnosis of tubercular conditions, and of great value in determining the progress of the disease. Its value in diagnosis in this disease is questioned by many advanced observers; my own observation would lead me to disagree with this view. I present a few cases in which the microscope appears to have been of marked value in diagnosis of tubercular conditions. An interesting feature of some of these cases is that physical examination in the hands of most capable physicians sometimes fails in diagnosis where the microscope helps out, and its reliability is confirmed by prognosis. The following letter from Dr. U. C. Lynde, an old and reliable physician of Buffalo, details three interesting cases:

BUFFALO, N. Y., July 20, 1889.

Dear Doctor Fell:

Yours received, and in answer will state that in the summer of 1884 I was attending two patients, male, about forty years of age; both had night sweats, hectic fever, emaciation, rapid pulse, etc., etc., etc.; physical signs alike, and so similar were their symptoms, signs, apparent condition, that my prognosis was the same for both: unfavorable; my diagnosis being pulmonary tuberculosis. Dr. Dawe, now of Rochester, this State, secured sputa from both patients, This sputa was carried to your office for microscopical examination, you having no knowledge whence the sputa came. The sputum of A. D. Mahone, 137 Carroll street, of this city, was loaded with bacilli, while that of the other patient, W. W. Potter, had none in it. The former, A. D. Mahone, died inside of four months, while the latter, W. W. Potter, recovered, and is now well.

In the Summer of 1887 Dr. E. T. Dorland called me to see John Watson, 291 South Division street. Mr. Watson had been sick for three months when we sent you some of his sputum for examination, as we feared it contained tubercular bacilli. Our fears grew out of the following conditions, viz: persistent cough, heavy expectoration, great emaciation (patient having lost fifteen pounds in weight), hectic fever, night sweats, œdema of the feet, pulse of 140 and physical signs indicative of pulmonary tuberculosis. After two or three examinations you found no bacilli. Contrary to our expectations, Mr. Watson recovered and is now well.

Yours respectfully,

U. C. LYNDE, M.D.

The following letter from Dr. A. E. Persons, Professor of Materia Medica and Therapeutics Medical Department Niagara University, is also interesting in this connection:

G. P., aged 18, student; lived on a farm until two years past; father healthy; mother delicate, nervous temperament; brother and four sisters healthy. Another brother died at ten years, of cerebro-spinal meningitis. Grandparents lived to exceed 75 years. One brother of maternal grandmother said to have died of phthisis, otherwise no hereditary history. From May to September patient says he had occasional chilly sensations and frequent attacks of headache. Felt well in July and August, his vacation, but loss of flesh was noted on his return to the city, Sept. 15th. About October 1st had an attack of acute pharyngitis, accompanied with hoarseness. Temperature when first taken was 104° Fahrenheit. Dry cough, anorexia, dry and mucous rals posteriorily over right lung; expectoration streaked with blood. No signs of consolidation, but diagnosis of catarrhal pneumonia. Kept in bed two weeks, when symptoms subsided, but cough persisted; felt better and was allowed to sit up. Soon began to have chills and fever every afternoon. Dr. W. S. Tremaine called in, careful physical examination gave negative results, advised quinine and increased nutrition, improvement with cessation of chills. Temperature became nearly normal. Sputum examined by Drs. Ewing and Banta; no tubercle bacilli discovered. Patient also examined by Dr. Dorr, with same results. Phthisis suspected by all physicians, but no physical signs found. In December patient left the city; soon grew worse. Cough, chills and fever returned. Sent sputum for examination in January; tubercle bacilli found by Drs. Fell and Buswell. Returned to city in February. Examination revealed all physical signs of phthisis. Cavity in one lung, other involved; subsequent history about the same as ordinary cases of phthisis.

Dr. Persons states also:

> The case is interesting, from the fact that careful physical examination of the chest by four skilled physicians failed to detect the physical signs of phthisis until after tubercle bacilli had been found, although the symptoms were such as to make the case one of suspicion.

In April, 1889, Dr. George M. Palmer sent me some sputum to examine. Diagnosis, tuberculosis. Microscopical examination revealed B. tuberculosis.

Mrs. C., wife of Doctor F. R. C. This lady's husband had made a diagnosis of tuberculosis of the lungs. He informed me that several medical gentlemen diagnosed tuberculosis, and Dr. John Cronyn was in doubt. Evidences of approaching dissolution, prognosis unfavorable. Examination of sputum *failed to discover B. tuberculosis.*

Within the year Dr. C. has died of typhoid fever, and his widow survives him, and is reported to be in excellent health. These results indicate markedly the value of the microscope as a factor in diagnosis.

I could report many other cases where the microscope has confirmed diagnosis. The above are among the most interesting cases I have casually been called upon to investigate.